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TO VOCALISTS.

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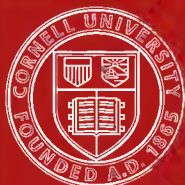
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TRUTHS
OF
IMPORTANCE
TO
VOCALISTS.

BY
EDMUND J. MYER.

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Preface.

IT is not my object, in placing this little work before the reading public, to advance any new system of voice production, voice development, voice building, etc. I desire simply to state in a plain, straightforward manner, avoiding, as far as possible, all technical terms, *some truths of much importance to all vocalists*. Much has already been written and said on certain of these points, and the views entertained by the different writers are almost as numerous as the works themselves. Other points of vast importance to the vocalist have been almost or entirely neglected.

The subject of *vocal acoustics*, or of the development of the acoustic properties of the voice, has, with a few exceptions, been sadly neglected. This is one of the most important, if not *the most important* point in the broad field of voice culture.

There has been but little said in reference to the second series of the chest register in the male and female voice, and the head register in the female voice—points of great importance.

I have read or seen nothing in reference to the production and development of the *natural tone* of the voice; the production of tone by the *natural force* or *weight* of the voice. This is a matter of great surprise, when we consider the *vast importance* of this point to *all vocalists*, and *especially* to the *tired, overstrained* voice or throat, which has been made to sing by *sheer muscular force*. This point is but little understood.

The general uncertainty and indefiniteness of voice teaching are remarkable in this age of progress in the arts and sciences. There should be no reason why the earnest seeker after the truth shall not know the truth as it is in reference to the human voice. Voice teaching, in its broadest sense, the building, developing and toning of the voice, should be made plain and definite to the mind of the pupil. Only that voice teaching is plain, definite, comprehensible and perfectly safe, which is founded upon *true scientific principles*.

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Introduction.

THEY who know the human voice, the king of all instruments, are but few. The general knowledge of the voice, from a scientific stand-point, is far behind this enlightened age in which we live. I speak of those only who profess to know the voice, to know how to train it, to develop it, to use it. Those who have a correct knowledge of the human voice, even among this class of persons, are very few indeed. The age demands something more definite, more tangible, in reference to the development of the voice ; something founded upon scientific principles, and which cannot be gainsaid. Vocal music, elocution, oratory, etc., are becoming more popular with the masses year after year. Witness the great number of voice teachers and the greater number of pupils to be found everywhere. Consider the vast army of voice pupils who have been and who are constantly giving their time, labor and money to the training and culture of the voice ; and then think how very few well trained and beautiful voices there are, and you will be lost in wonder. " We are living in an age which is singularly poor in fine voices, both male and female," says a writer.

How few voices are equally developed, of the same beautiful timbre throughout ! How few sing with a correct method well mastered. This is so, not only of those who have been trained in this country, but it is equally true of the many who find their way to our shores from foreign lands. Many have

fair execution and power and yet but little or no beauty of tone, and perhaps miserable pronunciation ; the lack of beauty of tone and correct pronunciation is the rule, and by no means the exception. It is a fact, that while there is much study, the general result is not satisfactory. But few ever realize their fond hopes ; but few ever gain that eminence which in imagination they saw before them. I speak of those only who start with fair, natural ability in the way of voice, physical strength and musical sense. No doubt failure in many cases is largely the fault of the pupil, but in many more cases it may be attributed to some other source. Something must be wrong, either the methods or the systems used, or the manner in which they are applied is at fault. That there are excellent methods, we all know ; that the best methods are understood by the few, we as well know. The best method, when not understood, is but little better than the worst.

The many so called vocal methods which are so universally taught have been long and well tested, and the result does not justify any one in standing by them. The average voice teacher of the present day is, from an artistic or scientific stand-point, much behind the age. As a rule, he knows little or nothing of the scientific production of the human voice. He is satisfied to travel in the old well-worn ruts, and at once opposes and cries down any one who, from a desire to know the truth, strikes out in a new direction, or takes a stand upon a higher plane. Witness the hue and cry against the laryngoscope by many who are sadly in need of its teachings—who are wofully ignorant of many great truths which have been discovered by its invaluable aid. It is time that those who are interested in the culture of the human voice awaken to the fact that the art of voice culture is behind the age ; that the old

well-worn systems and methods, which have produced such unsatisfactory results, must give way to something more definite, more tangible, something founded upon scientific principles. The age is ripe for, and demands reformation. Study, research and advancement must be the order of the day. The voice student thirsts for the truth.

The reader will bear in mind that I write of voice culture in its broadest sense only, the building and toning of the voice, the development of the action, quality and power, in fact, the development of a perfect vocal *technique*. I have no reference whatever to that system of so called voice teaching which but aims to teach certain written exercises and songs, and which are usually taught without any legitimate effort to develop correct vocal form or *technique*. By far the greater part of that which is called voice teaching is of this nature ; hence the meagre and unsatisfactory results. The study and development of the acoustic properties of the voice, one of the most important, if not the most important point in the broad field of voice culture, is at the present day, with a few exceptions, most unaccountably ignored or neglected. This is something remarkable when we consider that the right production of every tone, and the development of the power and beauty of the voice, are founded upon the correct development of the acoustic properties of the voice ; this development must be the result of careful, intelligent study, to be general with voice students. As a rule, it is but the result of accident ; an occasional singer may unconsciously find the right way, which, to a great extent accounts for the few beautiful voices among singers. The weakest point in the prevailing systems or methods of voice culture is the almost universal neglect, or the absence of any correct study or development, of the acoustic

properties of the voice. This is owing to a lack of appreciation of the vast importance of the study and correct development of these properties, or to ignorance of how to properly develop them ; or, as is no doubt often the case, to ignorance of the entire subject.

A practical and most eminently satisfactory personal experience of the vast importance of the study and correct development of the acoustic properties of the voice in the work of voice development, voice culture, etc., has led the writer to devote a chapter in this work to the important subject of *vocal acoustics*. It is hoped that it may reach at least some of the thinking portion of the many voice teachers, students and vocalists of the day, and that good may come from it.

Chapter I.

The General Uncertainty and Indefiniteness of Voice Culture.—Vocal Methods.—The Forcing Process.—The Mechanism and Action of the Voice.—The Registers.—Vowel Formation, Pronunciation, etc.—Correct Breathing.

THE GENERAL UNCERTAINTY AND INDEFINITENESS OF VOICE CULTURE.

IT has been said that not one singer in a hundred can explain how he produces a tone. The careful, competent judge or critic, who hears the average singer time after time, needs no argument to convince him that there is much truth in the above statement.

The vocalist who sings with a correct method well mastered, is the rare exception. How few there are who have perfect freedom of voice, whose voices are evenly developed and of the same beauty of tone throughout, upon all the vowel forms of the language. How few who can produce the same form and quality of tone time after time, and who know beyond question just how they produce the tone. Such singers are rare even among professionals. With the much teaching and study of the present day in view, the question naturally arises, how is this to be accounted for? In no other way can it be accounted for than that *the art of voice culture is, as a rule, empirical, and not as it should be, scientific.*

So long as voice teaching is imitative and experimental, and not founded upon fixed scientific principles, so long will the greater part of the vast army of voice students, who are constantly marching on, fall short of the desired goal. Many voice students have no definite knowledge as to what they are

endeavoring to accomplish ; they have no doubt a vision of the high plane toward which they are striving, but how they are to get there is the great mystery ; nothing is made clear or definite to them ; it is a random work, a trust, as it were, to blind chance.

Madame Seiler (author of "The Voice in Singing"), in speaking of her own experience as a teacher, says : "I was wanting in the knowledge of any sure starting point, any sound principle, from which to proceed to the special culture of any individual voice. I sought the most celebrated teachers, but what one announced to me as a rule was usually rejected by another : every teacher had his own peculiar system of instruction. No one could give me any definite reason therefor, and the best assured me that so exact a method as I sought did not exist ; that every teacher must find his own way through his own experience." But Madame Seiler was not satisfied with this condition of things, and resorted to scientific investigations ; the result has been that through her endeavors, aided by the laryngoscope and the counsel of Prof. Helmholtz, she has been enabled to definitely settle disputed and important points and principles in reference to the scientific production of the human voice.

It appears to be the aim of many to surround the profession with an air of mystery. The applicant for instruction gets nothing definite, nothing tangible, but is rather led to believe that there is something about the art that is beyond the ability of the ordinary mind to grasp. If the teacher has a great theory on the physiology of the vocal organs, he will speak of the action or movement of this muscle of the throat, of that cartilage, or of the combined or opposing movements of certain muscles in a very mysterious manner, using the most wonderful technical terms possible. If he has no great theory, then you must trust to him ; you could not understand if he did explain. Often just what to do with or for a particular voice is a great mystery, even to the teacher ; then quackery comes to his aid, and the usual forms and exercises are gone through

with, regardless of the actual wants of the voice, trusting to blind chance to accomplish the desired result.

Thus the art of voice culture is often surrounded by an air of mystery, and many are led to believe that it is something beyond the comprehension of the ordinary mortal. This I do not hesitate to say is but the outgrowth of gross ignorance of the correct production of the human voice, of its correct form, action and development.

If the art of voice culture is not definite to the mind of the pupil ; if the study is a series of experiments, a groping, as it were, in the dark, it is so only because it is made so. If voice culture is *empirical*, and not as it should be, based upon *scientific principles*, it is so only because the manner or method in which it is taught makes it so.

VOCAL METHODS.

The term method in relation to voice culture, conveys to many a very different idea from that of its true meaning. A young man said to me : " I would not study with Mr. ——— ; he has a method, and I do not believe in methods ;" and yet what is voice teaching or voice study without a correct and definite method or manner of doing things ? Many systems of voice teaching which are called methods, are directly the opposite of anything or everything which has the least resemblance to method.

Many so called vocal methods are written with only a business or financial success in view. The artistic or scientific side of the question is ignored. Many of these methods are founded upon extremely fanciful and often ridiculous theories. Many are founded upon simply nothing at all ; but all are to work wonders ; and, strange to say, " the more mystifying these systems appear to be, the greater seems to be their success." The different, and often directly opposing views on important points set forth by the many works on the voice are something remarkable, but that which is most remarkable is their general

ambiguity ; but little is definite or tangible ; but little is founded upon fixed principles.

The reason, then, is apparent, why voice teaching is so often uncertain and indefinite. This person and that invent their wonderful methods, differing on vital points, as day differs from night, and many teachers blindly adopt one or other of these methods, each giving it his own peculiar interpretation.

No complete theory or method of voice culture can, with any degree of success, be reduced to writing. It is simply impossible to put upon paper a correct and complete method for the scientific production of the voice ; for the building and toning of the voice ; for the development of a perfect vocal *technique*, without which complete success is impossible. You can no more do this than you can write the differences of tones, good or bad. A complete knowledge of any art cannot be obtained from books alone, much less the art of voice culture in its broadest sense. The fine, delicate differences of the shades and qualities of tones in all particulars and forms can be imparted *only in a direct manner* to the pupil, by the competent teacher.

The teacher who depends entirely upon written work, must, to a very great extent, fall short of complete success. There are certain written exercises that are used correctly by most teachers, for certain purposes, when the voice is ready for them, but the most important part of the work, the developing, forming and toning the voice, is done by the skilful teacher in the way that each particular voice requires. The correct form and action of the voice, that which develops the power and beauty of the voice, cannot be taught with any degree of success, from written works alone. There are many excellent written works, which are valuable external aids to both teacher and pupil ; but the great unwritten work has grand fundamental laws, *not* within the power of man to reduce to writing.

It certainly must be a matter of great surprise to those who are competent to judge, that so many vocalists sing without any method. How few impress you as having mastered a cor-

rect method, which teaches the right way from the wrong in all things. Either the majority of singers have not given sufficient time and study to do justice to themselves and their teachers, or they are the victims of one of the many pseudo methods.

Many, with naturally good voices, sing so unevenly in rendering but a simple ballad, as to deprive the hearer of all pleasure. One tone may be beautifully rounded; it will depend upon the vowel sound and the pitch; for the same reason, the next may be sharp and disagreeable, or flat and veiled. Such singers have no idea whatever of the correct form and action of the voice—no idea of correct vowel formation. Their voices are not formed to develop the harmonic beauties; imperfect intonation, articulation and faulty breathing is the rule, and not the exception. These defects are evidence of a want of correct study, founded upon principles which teach clearly the right from the wrong in all things.

All these defects may not be heard in one and the same voice, yet many voices have one or more glaring faults, which considerably lower the standard of the singer. In most cases, singers are ignorant of their own faults, their faults never having been placed before them in the right way. There are those who are painfully conscious of their faults, but being ignorant of the proper remedy, they are unable to correct them.

To sing without a correct method well mastered, is, to a great extent, to fail. Every movement of the truly great artist, either consciously or unconsciously, is founded upon the principles of a true scientific method.

Both teacher and pupil, in order to be successful, must know the value of every note in the voice. If wrong, must know it is wrong, and why; if correct, must know it, and how made; must know always how to make a tone in a certain definite way, and be able always to make it that way, everything, of course, being in a normal condition.

In this age of progress in the arts and sciences, there is no

good reason why the vocalist should not fully understand and appreciate the mechanism of the vocal apparatus, and its correct or incorrect form and action in producing tone, right or wrong.

But to know this is the bounden duty of every teacher, in order that he may be able to make clear to the mind of the pupil, beyond the shadow of a doubt, every step taken in building, developing and toning the voice. The pupil should never be required to do anything for which a satisfactory reason cannot be given. All things must be fully understood, to afford the greatest possible benefit.

THE FORCING PROCESS.

One of the greatest and most prevalent evils in voice training, is the forcing process. The aim appears to be to acquire power, or rather loudness, as quickly as possible, regardless of the fact that it is accomplished only at the expense of quality and durability ; not only this, but often from the overstrained effort, weakness and permanent injury of the vocal organs is the result.

The human voice is a wonderful, but a very delicate instrument, and will stand but a certain amount of unnatural pressure and abuse ; this is especially so with beginners, whose voices are very easily injured. Much of the voice teaching of the present day is simply a process for forcing what is called a big voice, as though that were the thing above all others to be desired. The way this is usually done would lead one to believe that quantity, and not quality, is considered. If quality is considered, there is certainly but little done to gain it ; almost everything that tends to develop the desired timbre appears to be overlooked or ignored. Correct form is seldom considered ; if it is, the result most assuredly proves that it is not understood, and correct action is as little understood. Without a knowledge of correct form and action, the voice is almost sure to be forced, and beauty, durability, and genuine power are out of the question.

The forcing process entirely overcomes and destroys the desired acoustic properties of the voice, the free and natural action of all the vocal muscles, and the correct form and action of the vibratory column of air. Thus we see by unnatural forcing are overcome and destroyed the very means, and the only means, whereby the power, action, and harmonic beauties of the voice, the desired timbre, are developed. By constantly overblowing, the voice becomes throaty, breathy, coarse, heavy and unmusical. To do this subject full justice, from a scientific stand-point, would require many pages.

It is a very serious matter to attempt to train a voice, especially a fine, promising one. If there were more careful and conscientious thought and study given to the subject on the part of the profession, there surely would be fewer failures among those who, in the attempt to cultivate the voice, have given years of hard study and spent their last dollar.

Nature, as a rule, has endowed man with a perfect vocal apparatus. This apparatus is a delicate instrument, and in training must be handled with great care and skill. When properly trained, and under the complete control of its master, it is capable of almost unlimited work, yet the majority of voices are found in an abnormal condition, which is due, almost without exception, to forced and unnatural usage. There can be no question that the many ills, to which the voice or throat is heir, are, as a rule, due to misuse or abuse, and not so much to other causes, as is often supposed.

Climatic changes, instead of inducing diseases of the throat, oftener aggravate those already brought on by misuse. The voice or throat which is properly trained, is sure to grow strong and healthy, instead of weak and delicate. This applies to the speaking as well as to the singing voice.

THE MECHANISM AND ACTION OF THE VOICE.

The mechanism of the voice is an important and lengthy subject, so much so that I shall not attempt to treat it in this little book, but refer the reader to such valuable works as "The

Throat in its Relations to Singing," by Whitfield Ward, A. M., M. D. ; "The Mechanism of the Human Voice," by Emil Behnke, and other valuable works on the same subject. A knowledge of the mechanism of the voice is of vast importance, otherwise it is impossible to fully understand and appreciate the correct action of the vocal apparatus.

The correct and natural action of the voice is, of all things in voice training, the most important. All parts of the voice producing apparatus are so closely connected and allied, that the improper use or management of one part alone, is sure to affect more or less the whole. Any one of the following points interferes more or less with the natural action of the voice, and is felt in the production of tone.

Defective breathing.

Contraction of the strong muscles of the throat.

Sluggish approximation of the vocal chords, whereby the prompt formation of the glottis is prevented.

An unnatural or forced up condition of the natural divisions or registers of the voice.

A lack of correct form of the pharynx and of the mouth, the resonant cavity of the voice.

Any or all of the above defects prevent a free and correct movement and direction of the vibratory column of air ; or rather, ignorance of how to develop the correct movement and direction of the vibratory column of air, or ignorance of what the correct movement and direction are, superinduces any or all of the above abnormal movements, as well as many others.

The correct management or the mismanagement of the vibratory column of air which passes from the vocal chords into the mouth, the resonant cavity of the voice, is, beyond question, the great secret of the success or of the failure of singers. This is true almost without exception. But as this is directly a question of the acoustics of the voice, it will come more properly under that head.

THE REGISTERS.

Many conflicting theories prevail in regard to this subject. The majority of them are evidence of the fact that the registers of the voice are not usually understood. Many of these theories are novel and peculiar. It often strikes one that it is not the truth which is sought for, but rather, something new, sensational or mysterious.

The old theory of the registers, absolutely false, has yet many believers among teachers and pupils. Those who have given hard, honest study and scientific research to the subject, have been amply repaid by a revelation of the truth; the truth as it exists in nature in reference to the *registers*, the natural divisions of the voice, their transitions, etc.

WHAT, THEN, ARE THE REGISTERS?

One writer says: "A change in register consists in relaxing one muscular combination and assuming a different one." Another says: "A register consists of a series of tones produced by the same mechanism." Both definitions are good.

The natural divisions or registers, the changes of the voice, have their origin in certain forms and actions, or certain changes in the form and action of the vocal apparatus at certain tones of the voice. This is a fact founded upon a scientific basis, and "facts are stubborn things."

The false theories have mostly had their origin in certain physical sensations which have a tendency to mislead, and which have no direct relation to the production of tone. Thus one often feels as though certain tones were drawn from the lower part of the chest, others from the upper part of the chest, others again from the pharynx. Of the higher tones the sensation is as though they were formed in the mouth, and of those still higher, as though they came from the head. These physical sensations have given rise to many erroneous theories in regard to the formation of tones in the different parts of the voice, but they have nothing to do whatever in a direct way with the generation of sound.

That there are natural divisions of the voice, none but those who are woefully ignorant of the anatomy and physiology of the vocal organs, and of the correct form, action and mechanism of the voice, would dare deny.

The form and action of the vocal apparatus in one part of the voice differ from that of another in producing tone; the places in the voice where the changes in the form and action occur, are the natural transitions from one division or register to another. A careful study of the voice by the aid of the laryngoscope should convince any one that every tone is born or receives its life in the larynx; that the changes in the form and action of the vocal apparatus cause the difference in the tones of the different registers. It is of vast importance that the correct form and action of the vocal organs in all parts of the voice, and the natural transitions of the registers, be fully understood; ignorance of these things is a source of more serious trouble to the singer than all else besides.

In considering the natural divisions of the voice, for the want of better names, I adopt the well known terms, chest, medium and head registers. The medium is known to many as the falsetto. The term falsetto, being used incorrectly, has a tendency to mislead. I, therefore, substitute for it the term *medium*.

The best authorities, who have studied the voice by the invaluable aid of the laryngoscope, agree that there are three registers; two of these registers being divided naturally into two series each, we have five natural divisions of the human voice, five different muscular combinations, as follows: The lower and upper, or the first and second series of the chest register, the first and second series of the medium register, and the head register.

Curwin, in "The Teacher's Manual," calls the registers "*the thick, the thin and the small*." Behnke, in adopting Curwin's terms, claims they have a scientific basis, and says: "There are, broadly speaking, three registers in the human voice, and the mechanisms are plainly visible, as follows: (1.) During the

lowest series of tones, the vocal ligaments vibrate in their entire thickness. (2.) During the next series of tones, the vocal ligaments vibrate only with their thin inner edges. (3.) During the highest series of tones, a portion of the vocal chink is firmly closed, and only a small part of the vocal ligaments vibrates." Behnke, also, in considering the subdivisions, divides them as follows: "Lower thick, upper thick; lower thin, upper thin; small."

Madame Seiler, in her admirable book, "The Voice in Singing," says: "We have found five different actions of the vocal organ:

"1. The first series of tones of the chest register, in which the whole glottis is moved by large, loose vibrations, and the arytenoid cartilages with the vocal ligaments are in action.

"2. The second series of the chest register, when the vocal ligaments alone act, and are likewise moved by large, loose vibrations.

"3. The first series of the falsetto register, where again the whole glottis, consisting of the arytenoid cartilages and the vocal ligaments, is in action, the very fine interior edges of the ligaments, however, being alone in vibrating motion.

"4. The second series of the falsetto register, the tones of which are generated by the vibrations of the edges alone of the vocal ligaments.

"5. The head register, in the same manner and by the same vibrations, and with a partial closing of the vocal ligaments."

My own observations, by the aid of the laryngoscope and the study of the form and action of the voice in all parts and in every particular, have convinced me that *the above divisions are substantially and scientifically correct*. I give below the natural divisions of the voice and the natural transitions of the registers, those places or tones of the voice where the form and action of one register change to those of another. Those places may vary in certain voices from a half tone to a whole tone, but, as a rule, they are found to be as follows:

We begin with the chest register in the male voice, and find

the lower or first series of the chest register extends from the very lowest tone of any male voice to B flat, or B third line tenor clef. The upper or second series from B to F or F sharp, fifth line. The first series of the medium register commences with F sharp, fifth line, tenor clef, and extends to E flat or E above ; as the male voice seldom extends above this point, we may say that, as a rule, the male voice sings in but the first and second series of the chest, and the first series of the medium register.

In the female voice, the first series of the chest register extends from the lowest tones to C sharp, first added line below, soprano clef. The second series, from C sharp to F sharp, first space. The first series of the medium, from F sharp to C sharp, third space ; the second series from C sharp to F or F sharp, fifth line. The head register extends from F sharp, upward. The only transition which occurs at exactly the same place in the male and female voice, is the change from the chest to the medium register.

It must be borne in mind that music is usually written for the male voice an octave higher than it is sung, so that F sharp, fifth line, tenor clef, is exactly the same tone as F sharp, first space, soprano clef. The transition from the chest to the medium register occurs in all voices at the same place, F or F sharp. This is the most prominent transition, and is often called the break in the voice. Every tone below this point is made by the vibration of the vocal chords in their entire breadth, the tones above by the vibration of their free inner edges only. Ignorance of the correct form and action of the upper chest tones, and of the natural transition from the chest to the medium register, is a source of much serious trouble to all voices.

“ We have thus learned the natural transitions of the registers, *i. e.*, those tones where a different action of the vocal organs takes place. That the registers may be forced up beyond their natural limits is possible, we have seen ; but observation teaches us that it cannot be done without a straining of the

organs, which may be both seen and felt, and no organ will bear continued overstraining. The discovery of the natural transitions of the registers has brought to light one of the greatest evils of our present mode of singing, and shown, at the same time, how wanting in durability are the voices of those of our artists, whose aim and endeavor it is to force the registers upward beyond their natural limits. *In the ignorance existing concerning the natural transitions of the registers, and in the unnatural forcing of the voice, is found a chief cause of the decline of the art of singing, and the present inability to preserve the voice is the consequence of a method of teaching unnatural, and, therefore, imposing too great strain upon the voice."*

Again I say, it is of vast importance that the correct form and action of the vocal organs, in all parts of the voice, and the natural transitions of the register, be fully understood. Each and every division of the voice has its own peculiar form and action, which naturally belong to it. When all these are correctly and fully developed, they fit, as it were, into each other in such a perfect way that the voice may be sung from the lowest to the highest tone without perceptible break or change. In this way only is it possible to develop throughout the entire voice the same timbre or beauty of tone. So long as the natural divisions of the voice, and the form and action of each division are not understood, so long will we hear voices that are strained, uneven, and anything but musical.

VOWEL FORMATION, PRONUNCIATION, ETC.

Correct vowel formation, articulation, pronunciation, etc., are almost universally neglected. It is true there is an effort made toward a certain kind of vowel study; vowels are sung to certain exercises, but anything like correct vowel formation, based upon acoustic or scientific principles, is a thing almost unknown. There is a great lack of correct and intelligent study in everything which tends to develop a good, pure pronunciation. We often hear a song, whose beauty lies in the

sentiment, sung in such a manner that scarcely a word is intelligible. This is easily accounted for when we consider that the common custom is to study and vocalize but one vowel sound, and to almost entirely neglect articulation.

It is well known to scientists that the form of the waves of sound determines the quality or timbre of the tone. This is eminently true in the formation of every vowel sound. "The conditions by which the formation of the vowels is determined lie in the form of the cavity of the mouth, and of the contraction or expansion of the same in some one place or another during expiration."

Every vowel sound requires a peculiar form or turning of the resonant cavity of the voice, in order to give and sustain it in its purity. The particular form of each vowel sound must be fully understood by the singer, and so mastered that it may be produced and sustained at will. This is the only way in which it is possible to develop pure and correct vowel form.

Every vowel sound in the voice of the singer, who constantly vocalizes but one form or sound, takes (unconsciously to the singer) more or less the form of that sound; hence, anything like pure vowel formation, in certain parts of the voice, on certain sounds, is simply impossible. To acquire a perfect technique of the piano forte one must carefully practice every position of a chord—and not only one and trust to luck for the others; so the mouth must be formed or tuned for each vowel sound, and each sound properly vocalized.

The vowel sounds which require particular study are not many in number—about eight in all, and when these are mastered the entire language is mastered, so far as vocal form is concerned. Of these, the following are the most difficult to master and are least understood:

The long sound of e, as in me, thee, reed, deed, etc.; the short sound of e, as in met, rest, dead, death, send, strength, etc.; the short sound of i, as in sing, ring, rid, did, it, in, bring, etc.; the long sound of a, as in may, day, gale, raid, pain, etc.

But few are the singers, even among those who are called artists, who can or who do correctly form and sustain the above vowel forms in all parts of the voice. When the correct form and placing of these sounds are understood and mastered, they are as easy, often easier, than the more open sounds.

In studying for a pure pronunciation, articulation must by no means be neglected. Every consonant must be given its full value. The consonants, which are the noises of the voice or the speaking sounds, are made in the cavity of the mouth and on the lips. The vocal or vowel sounds, which are the singing sounds, are created in the larynx and augmented by the resonant cavity of the voice.

In singing, it is impossible to pronounce words distinctly without giving the consonants their proper value, yet the noise of the consonant must never interfere with the flow and sustained form of the vowel sound.

It is a very common and a very distressing thing to hear singers lose the vowel form of the word, before they have held it its full time, by a sort of half pronouncing effort, and then attempt to sustain the word its full time by the pronouncing or consonant sound.

The result is anything but a musical sound. So long as a word is to be held, so long must the pure vowel sound, which forms the word, be sustained, and just as the word is dropped the consonant sound must be spoken quickly and distinctly.

Speaking and singing are the combined action of two different instruments, which may also act separately. When we whisper, we use but one of the instruments, the front of the mouth, the lips, teeth, tongue, etc. When we sing without words we use the other, the vocal apparatus. When we sing with words, or talk aloud, we use both.

The difference between speaking and singing lies in the timbre of the vocal tones ; in singing the vowel sound is more fully formed and sustained than in speaking. The noises of the voice (the consonant sounds) should be and are, when properly managed, always the same.

By the proper study and perfect mastery of all the vowel and consonant sounds, the pronunciation, enunciation, etc., of the well-trained singing voice, becomes as pure, distinct and telling as that of the accomplished orator.

In the voice of the singer who has correctly developed and mastered its vowel forms and consonant sounds, *the English language becomes as easy and as beautiful as any other.*

CORRECT BREATHING.

Correct breathing in singing, is a subject upon which one would suppose there would be no great difference of opinion, so simple is it to determine the right way from the wrong, and yet many and widely different opinions do exist.

One teacher bases his method entirely upon what he calls correct breathing. Another goes so far as to say that by certain breathing exercises, he can wonderfully develop the voices of his pupils, without their uttering a single sound. On the other hand there are those who never teach breathing exercises at all, and there are actually in existence in this enlightened age, singing teachers who condemn breathing exercises of any kind.

The correct management or control of the breath is of the greatest importance. Right breathing may be considered one half of the battle in voice development ; yet the fact remains that right breathing in singing receives but little attention at the hands of teacher or pupil ; it usually receives but a few passing remarks ; it is seldom systematically and carefully studied and practiced. This fact is more than confirmed by the very poor and often vicious manner in which so many public singers breathe.

What, then, is correct breathing ?

The best authorities, those who have given the matter careful study and experiment, not only from a scientific, but also from a practical stand-point, agree that *the deep breath*, that which is known as the *abdominal*, or *diaphragmatic*, is the only correct singing breath. Upon this point, I can do no better

than to quote Herr Emil Behnke,* whose statement I consider as clear and concise as any on the subject.

Respiration consequently consists of two acts, namely, inspiration and expiration. Inspiration may be produced in three different ways. 1. By pushing the chest forward and flattening the midriff, so as to compel the lungs to descend and to increase in volume in order to fill the empty space created by this movement ; 2. By extending the ribs sideways ; and 3, by drawing up the upper parts of the chest, namely, the collar bones and the shoulder blades. In scientific works the first is called diaphragmatic or abdominal, the second lateral or costal, and the third clavicular or scapular breathing. As, however, these terms convey no meaning to the general reader, I prefer to speak of

(1.) Midriff breathing.

(2.) Rib breathing.

(3.) Collar-bone breathing.

In taking a full deep inspiration, midriff breathing and rib breathing take place almost together, and assist each other—that is to say, the midriff contracts and flattens, and immediately afterwards, the ribs extend sideways ; with this difference, however, that in men, the action of the midriff takes a larger share in the work than the ribs, while in women, on the contrary, the movement of the ribs is greater than that of the midriff.

The combined forms of midriff and rib breathing are the right method of inspiration, while collar-bone breathing is absolutely wrong, and should never be made use of. The reasons for this are not far to seek. The lower part of each lung is large and broad, while the upper part is cone-shaped, and very much smaller. It is self-evident, therefore, that by downward and sideways expansion (enlarging the lower part of the lungs) you will inhale a much greater quantity of air than by drawing up the collar-bones. This consideration alone

* "The Mechanism of the Human Voice."

should suffice to prove the utter falseness of collar-bone breathing. Collar-bone breathing has also the additional disadvantage of causing much fatigue, because all the parts surrounding the upper region of the lungs are hard and unyielding, so that a great amount of resistance has to be overcome (the "*lutte vocale*" of French authors), while the very opposite is the case with the lower part of the lungs.

It may be as well to add, that what has been said so far about right and wrong methods of breathing, is not by any means mere theory, but that anyone can convince himself of the truth of the rules laid down, by making a few experiments with the spirometer, an instrument for measuring the breathing power of the chest, by indicating on a dial the exact number of cubic inches of air expelled from the lungs. This breathing power will be found to vary according to the way in which the inspiration has been accomplished.

I am strongly of opinion that breathing exercises, especially in the case of intending public singers, should always be carried on with a spirometer, because that instrument enables us with the greatest accuracy to check results which otherwise can only be guessed at.

If this suggestion were acted upon, we should certainly no longer be distressed by that intolerable and never-ceasing tremolo which now so frequently mars many, in other respects, fine voices. It is a curious and at first sight unaccountable circumstance, that this great fault is especially noticeable among French singers. But at the Conservatoire de Musique in Paris, students are deliberately taught the wrong method of inspiration, for, as we gather from the "*Methode de Chant du Conservatoire de Musique*," they are told to "flatten [or draw in] the abdomen" and to "bulge out the chest." Thus the mystery is at once cleared up, because the tremolo rises almost invariably from a weakness of the muscles of the midriff or diaphragm, to which attention has already been called in these pages. This tremolo, one of the greatest vices besetting modern singing, and which has hitherto

been held by many to be incurable, may be got rid of completely, though, perhaps, not very quickly, by the simple remedy of lung gymnastics on the right principle."

Lennox Brown says :* "All breath taking in singing, as in speaking, and in ordinary life, should be abdominal. Inspiration should commence by the action of the abdominal muscles and descent of the diaphragm ; in other words, by pushing forward the walls of the abdomen and chest. As the lungs inflate with the descent of the diaphragm, the inspiration being prolonged, becomes lateral, and the ribs expand on all sides equally, but the shoulder blades and collar bones still remain fixed ; if respiration be further and unduly prolonged, it becomes clavicular ; but clavicular breathing is a method of respiration totally vicious and to be avoided. By it the whole lower part of the chest is flattened and drawn in, instead of becoming distended ; consequently the lower or larger part of the lungs is not inflated. It is a method never exercised by nature in a state of health, but only when, from disease, either the abdominal or chest muscles cannot act, and it is the method least efficacious in filling, as it is the one calculated to most fatigue the chest, for it compresses the vessels and nerves of the throat, and this leads to engorgement and spasmodic action of the muscles."

We find, then, that *the deep breath* is the only correct singing breath, and not the ruinous manner of raising the shoulders and chest, which is so common. The diaphragm, the muscles of the abdomen, and the costal muscles, constitute *the motive power of the voice*. It is by the proper use and control of the motive power that we are enabled to give all those dynamic effects of light and shade that are so impressive in the voices of accomplished vocalists.

The singing breath should always be controlled by the motive power, thus leaving the throat entirely free to attend without

* "Medical Hints on the Production and Management of the Singing Voice."

encumbrance to its grander office, the creating and forming of the tone.

It is of vast importance to practice such exercises as will increase the circumference of the respiratory chamber, develop the chest and the capacity of the lungs, in connection with the careful and thorough training of the motive power ; this, as a whole, resolves itself into systematic and artistic breathing.

Deep breathing alone is by no means difficult to accomplish; but to *properly retain, control, economize and apply the deep breath, requires careful study and practice.*

One of the great evils of voice teaching is the very common custom of overblowing, forcing the voice, by filling the lungs to their utmost, and then singing as long and loud as possible. Three fourths of those who suffer fatigue of the voice are victims of such ruinous efforts. Many of the most common and the most serious diseased conditions of the throat are due to over breathing.

The hygienic development of the lung capacity, and the scientific education and application of the motive power to the correct development of the voice, can and should be mastered by every careful, conscientious vocalist. A course of correct breathing for weak lungs is worth infinitely more than medicine. "The hygienic development of the vocal machinery involves exercises of the whole inner trunk of the body ; and here, as elsewhere, stagnation is death, movement is life and health. The effects of normal diaphragmatic development, as exhibited in general improvement of health, and in the cure of special disorders, are such as need no medical learning for their discovery."

Chapter II.

VOCAL ACOUSTICS.

The Average Condition of Voice.—Tone.—Over-tones.—Form.—Placing.—Touch.—The Acoustic Properties of the Voice.

THE AVERAGE CONDITION OF VOICE.

THE average condition of voice among speakers and singers is certainly much below the standard—much below that which it ought to be or might be, were the right use of the voice better understood. This condition is evidence that but few speakers or singers use their voices in a free and natural manner. The great majority of voices are used, or rather forced, to do the work demanded of them by sheer physical muscular force. The result is they become throaty, breathy, unwieldy, devoid of flexibility and of all desirable musical qualities. This comes from the idea that loudness is power; from ignorance of the fact that there is a way to develop the power, beauty and flexibility of the voice, other than by mere muscular force; a process of development founded upon natural laws, simple and sure.

The most difficult thing to accomplish in voice training is to develop the correct form and action, or movement of the throat and vocal muscles in producing tone; to so train the throat and vocal muscles as to give to the voice perfect freedom of emission. All vocalists well know that this training is most difficult to acquire. That but few ever do acquire it is very evident. All manner of ways and means are resorted to, to overcome the usual closed and contracted condition of the throat, the great barrier to the freedom and beauty of the voice. The most common and, at the same time, the worst means which can

possibly be employed, are local throat gymnastics which, instead of helping the matter, are sure to make it worse, in fact, often resulting in serious throat troubles. Many resort to just such questionable means, whereas common sense should teach them that it is the very thing to be avoided. In fact, there are those who advertise local throat gymnastics in voice culture, and many try their systems year after year; the result is evident.

The great beauty of the voice lies in its perfect form and action. So long as certain strong muscles of the throat contract, they prevent a free and natural action of the larynx and of the vocal muscles; hence anything like perfect form and action of the voice is impossible.

The great obstacle in the way of the success of the majority of vocalists is a pinched and contracted condition of these strong muscles. This abnormal condition of the throat may be ascribed to various causes, but beyond question, in the majority of cases, it is due to a forced and unnatural manner of using the speaking or singing voice. This cramped and pinched condition of voice cannot be overcome by any system of local throat gymnastics. *Local throat effort ruins many fine voices*, and yet it is resorted to day after day, regardless of the fact that the entire vocal apparatus constantly protests and rebels against such unnatural and overstrained usage.

The *mind* is the *great engineer* that *directs* and *controls* every movement of the voice. To whatever point we direct the mind, there will the greatest effort be made. The voice student, who constantly directs the mind to the action of the throat, and who, by *local throat effort*, strives to overcome the contracted condition of the strong muscles, will sooner or later develop the very movement which he is so anxious to avoid or correct. All movement of the strong muscles of the throat made by local effort, is just the opposite of that which is desired. It is a very easy matter to bring them into action, but it is impossible to control them. Let the voice student try as he may by any local effort to relax them and open the throat,

so surely will he contract them and close it. Voices trained by any system of local throat gymnastics, it matters not how mild the system may be, will sooner or later become harsh, throaty and muscular. Such voices are used only by the expenditure of twice the amount of breath, and many times the force necessary for the production of a full, rich, singing tone.

The *mind* or *will power* being the great engineer which directs or controls every movement of the voice, the vocalist should learn to direct the mind to a point beyond local throat effort—should learn to forget the throat as it were, at least so far as any local effort is concerned—and centre the mind constantly upon a point beyond—upon the objective point; that point is *the acoustics of the voice*.

By the study and correct development of the acoustic properties of the voice, the following results may always be attained. Relaxation of the strong muscles of the throat; free and natural action of all the vocal apparatus, perfect freedom of the voice and the development of that timbre or quality so desirable.

TONE.

It is well known that noise is produced by an irregular succession of shocks. Musical sound flows smoothly. A musical sound is caused by the vibration of a body with unerring regularity and with rapidity.

A singing tone is a musical sound caused by the pressure of a column of air from the lungs upon the vocal chords, which are thereby set in vibration, and which in turn cause the air, which is pressing through the glottis, to vibrate. This vibratory column of air passing into the pharynx and mouth, causes the air in pharynx and mouth, the resonant cavity of the voice, to vibrate. The vibratory waves of the resonant cavity communicate vibration to the outer air, conveying to the ear the sensation of a musical sound, either good or bad, right or wrong, considered as a singing tone. A sound produced by the voice may be a singing tone, yet the acoustic properties may be so bad as to be anything but pleasant to the ear.

Every tone, good or bad, possesses three peculiar properties, 1, *Strength* ; 2, *Pitch* ; 3, *Timbre*.

The strength or fullness of the tone depends upon the breadth or amplitude of the vibrations, the waves of sound. The pitch upon the number or rapidity of the vibrations, that is, the greater the number of vibrations to the second the higher the pitch, the less the number the lower, etc. The timbre depends upon the form of the vibratory waves.

In developing and cultivating the voice, that property which both teacher and pupil should constantly consider and study, is the *timbre* or the quality of the tone—that which makes the voice attractive and beautiful. The skilful teacher, by the proper development of the acoustic properties of the voice, whereby the desired timbre is developed, can change voices that are harsh and grating, or throaty and muffled, to voices of beautiful timbre or quality. This is done by a careful, conscientious study of the form and action of the entire vocal apparatus ; by a study of the correct form of the resonant cavity of the voice, and of the right movement, direction and control of the vibratory column of air. In this way the correct form of the vibratory waves of the resonant cavity is produced and maintained, and the result is the development of the harmonic beauties of the voice, and *the desired timbre*.

OVERTONES.

As we have seen, the timbre depends upon the form of the vibrations. “Every musical tone consists of its fundamental and of a series of overtones, following one another in a certain order, and the timbre of the tone is changed by the number and strength of these overtones. A perfect musical tone must be free from high dissonant overtones, and be composed of its fundamental tone and harmonic overtones sounding with the fundamental tone, and to such a pure tone a form of vibration as round as possible corresponds. The infinite variety of the timbre of musical instruments, as well as

of the human voice, is evident from the fact, that the slightest change in the order, number and strength of the harmonics, as well as the addition of dissonant overtones, has an influence upon the timbre." Thus, tones of the same timbre have the same form of vibration, and consequently the same harmonic or dissonant overtones.

"Now it is not possible to sound a string as a whole without at the same time causing to a greater or less extent its subdivision, that is to say, superposed upon the vibrations of the whole string, we have always in a greater or less degree the vibrations of its aliquot parts. The higher notes produced by these latter vibrations are called the harmonics of the string. So it is with other sounding bodies; we have in all cases a coexistence of vibrations. Higher tones mingle with the fundamental one, and it is their intermixture which determines what we call the quality of the sound. The French call it *timbre*, and the Germans *Klangfarbe*."*

The body or column of air in the resonant cavity of the voice, in connection with the column of air from the larynx, vibrates not only as a whole, but also in divisions and subdivisions. The quality of the tone as a whole depends upon the number, form and relation of these divisions to each other and to the fundamental.

These divisions produce overtones, either harmonic or discordant. If the tone be so produced that the form of the vibratory waves as a whole and their several divisions is the same, and as round as possible, then the tones of the several divisions, the overtones, will be harmonic and will greatly intensify and beautify the fundamental. If the form throughout is not the same and not correct, then dissonant overtones will be developed, and the tone as a whole will be sharp and disagreeable, or muffled and veiled.

A correct singing tone, or a tone of the desired timbre, is one in which the overtones are in perfect form or tune with the

* Tyndall on Sound.

fundamental. Dissonant or discordant overtones are then not heard ; but the harmonics only are developed, which intensify and augment the fundamental, and produce tones round and mellow or clear and ringing.

The *timbre* of the tone, good or bad, depends upon the predominance of the *harmonic* or of the *dissonant overtones*. The development of the harmonic or dissonant overtones depends *entirely* upon the *right or wrong form and action of the voice*. The right or wrong form of the resonant cavity of the voice, and the correct or incorrect movement and control of the vibratory column of air. *These are special points of great importance in voice culture*, points which are almost entirely neglected, ignored or misunderstood. In fact, in this way only, by the study and development of the correct form and action of the entire voice, is it possible to gain *perfect freedom of voice and beauty of tone*.

Prof. Helmholtz has invented artificial aids by which the overtones, their strength and relation to one another and to the fundamental tone, can be distinctly heard.

The trained ear can always determine the character of the overtones from the timbre of the fundamental tone. In fact, the trained ear of the teacher who is accustomed to study the overtones and the acoustic properties of the voice, can often hear the discordant overtones sounding out above the fundamental in untrained voices, and it is by no means a rare thing to hear them in voices which have had considerable training.

FORM.

When correct form is developed the resonant cavity of the voice (the mouth and pharynx) is so formed or tuned that its vibratory waves are of the same form as, or in tune with, those produced by the vocal chords.

When the vocal apparatus is in a healthy condition, every tone produced by the vocal chords will be of a definite, natural pitch. The resonant cavity must be formed or tuned to

the same pitch as the vocal chords. We have not direct control of the vocal chords, as we have of the mouth; hence, the forming or tuning must be of the mouth.

Suppose we have tuning forks of different pitch, and small globes of different sizes and shapes. We strike a fork and hold it to the opening of each globe; we find one of them augments the tone of the fork more than the others. We strike another of different pitch and we find some other globe most augments or intensifies its tone, and so on until all are tried. No doubt we will find that the tone of each fork is most increased by a different globe. Why? Because the globe which most augments or intensifies the tone of a certain fork is nearest in form or tune with that fork. As the vibratory waves of the globe are the same, or almost the same form as those of the fork, and as the globe is a resonator, the tone is greatly augmented thereby. If we now call the power of the fork 1, and the power of the globe 4, we have, when they are added, 5. The resonant power of the globe 4 added to the power of the fork 1, gives us the tone of the fork augmented to five times its original power.

The same is true of the voice. Every tone produced by the vocal chords has a definite, natural pitch, but depends for power and quality upon the form, pitch or tuning of the resonant cavity of the voice. If the vibratory waves, or the waves of sound from the larynx, are of one form, and those of the mouth of another, then the mouth is not in form, or is not in tune with the vocal chords. Then the vibratory waves of the mouth, instead of assisting the sound waves from the larynx, interfere with them, and inharmonic or discordant overtones are developed. The result is—the tone, which can be sung by muscular effort only, becomes sharp and disagreeable, or flat and veiled.

If, on the other hand, the vibratory waves from the larynx and those of the mouth are of the same form, then the mouth is in form, or is in tune, with the vocal chords. When the mouth is in form or tune, then the vibratory waves of the reso-

nant cavity, and those from the larynx, are sympathetic—are in unison. Then the tone produced by the vocal chords will be greatly augmented by the power of the resonant cavity of the voice. In this way only harmonic overtones are developed ; the tone can be sung with perfect ease, and becomes full, rich and mellow, or clear and ringing.

Some parts of the voice are more easily formed than others, especially for certain vowel sounds. Each vowel sound requires a peculiar form or turning of the resonant cavity of the voice, in order to give it in its purity ; hence, the great importance of the study of correct vowel formation in voice culture, a study which is but little understood, and which is almost entirely neglected.

“The formation of the vowel sounds of the human voice excited, long ago, philosophic inquiry. We can distinguish one vowel sound from another, while assigning to both the same pitch and intensity. What, then, is the quality which renders distinction possible?

“In the organ of voice the reed is formed by the vocal chords, and associated with this reed is the resonant cavity of the mouth, which can so alter its shape as to resound, at will, either to the fundamental tone of the vocal chords or to any of their overtones. With the aid of the mouth, therefore, we can mix the fundamental tone and the overtones of the voice in different proportions. Different vowel sounds are due to different admixtures of this kind. Striking one of this series of tuning forks, and placing it before my mouth, I adjust the size of that cavity until it resounds forcibly to the fork ; then, without altering in the least the shape or size of my mouth, I urge air through the glottis. The vowel sound, ‘u’ (‘oo’ in hoop), is produced, and no other. I strike another fork, and, placing it in front of the mouth, adjust the cavity to resonance. Then, removing the fork and urging air through the glottis, the vowel sound, ‘o,’ and it only, is heard. I strike a third fork, adjust my mouth to it, and then urge air through the larynx ; the vowel sound, ‘ah !’ and no

other, is heard. In all these cases the vocal chords have been in the same constant condition. They have generated throughout the same fundamental tone and the same overtones; the changes of sound, which you have heard, being due solely to the fact that different tones, in the different cases, were reinforced by the resonance of the mouth."*

PLACING.

The form, the placing, and the touch (the action) of the voice are so closely connected and allied that it is almost impossible to consider one without the others. It is simply impossible to fully develop one of the three without developing the others.

Correct placing is directing the vibratory column of air from the larynx well forward against the roof of the mouth. All the rays of sound must be concentrated and focused to one point, as intensely, if possible, as the rays of light are focused by a lens.

When the correct movement and directions are given to the rays of sound, when they are properly placed, then they are instantly reflected from the roof of the mouth into the resonant cavity of the mouth.

If the mouth is in proper form, the air in the mouth is thereby caused to vibrate in the same form as, or in tune with, the reflected rays, and power and beauty of tone is the result. That particular point in the roof of the mouth where the rays of the sound should strike, and from which they should reflect, differs for different parts of the voice and for different vowel forms, but in all cases it should be well forward.

When a tone is concentrated and correctly placed, the sensation is distinct and definite. There is not a doubt in the mind of the singer as to the placing of the tone; he feels distinctly the play of the vibratory column of air against the hard palate—feels his mouth, as it were, filled with tone. When

* Tyndall on Sound.

the singer has thus learned to place the tone, and maintain the placing, it is astonishing what force and pressure he can put upon the tone, by the motive power, without disturbing the form of the vibrations, or in the least straining the throat or vocal muscles. The higher the tone the more distinctly the placing can be felt.

The low tones, the very low tones, are "essentially a forward movement" of the column of air. They must be sung well forward in the opening of the mouth, and never in the throat. The high tones are essentially an upward movement; the higher the tone the more intensely the rays of sound must be concentrated and placed against and under the roof of the mouth, *but always against the hard palate.*

All such vocal defects as the following, are due to a want of proper placing of the voice with a correct touch: Throaty, guttural, breathy tones, nasal tones, etc. The above qualities of tone are caused by a contracted condition of the strong muscles of the throat. The vibratory column of air strikes against the soft palate, and is reflected back into the throat, or it finds its way into the nasal cavity, instead of being brought forward and properly reflected from the hard palate into the mouth. On the other hand, all sharp, harsh, grating, thin, disagreeable tones, instead of being buried in the throat, lack proper placing, because they are brought too far forward; in fact, usually sung or forced out of the mouth. In this way the resonant cavity of the voice is entirely ignored, the result being the *dissonant elements* of the voice alone are heard.

Enrico Delle Sedie, the famous Paris teacher, with whom Nilsson studied, says: "The *posse* of the voice depends upon the manner in which the respiration is regulated. The sound ought to be carried to the hard palate, because the pharynx with its neighboring cavities is the real cavity of resonance for the vocal instrument. Further, the strengthening or increasing part must change dimensions according to the note emitted, so as to accord immediately with the note and vibrate in unison. Hence the necessity of studying the vowel corre-

spondent to the sound. The waves of air held by this additional tube, and adapted to a given sound, ought to continue its sympathetic vibrations as long as the sound lasts and remain constant in its volume; for it is evident that the current of air moved by the vocal chords plays in unison with the vibrations of the chords, in the resonating tube of which we have spoken. One can observe this important point by feeling the mouth as if filled by the sound, and for this one must be careful not to force the respiration, which would spoil the timbre and the equality of the tones.

“The timbre, which depends upon the different forms given the pharynx and the cavity of the mouth, requires a study in detail of the various configurations of this cavity. While the vocal tube vibrates on all the tones of the scale, the different organs and the different cavities of which we have spoken contract, expand and adapt themselves to the initial sound (first tone) and to the ever variable number of harmonies, the sum of which produces an equal number of timbres. These timbres, which are but vowels, are themselves very susceptible of modifications. The artist, in order to equalize and unite all the vowels to all the notes, should work with each of the vowels in succession.”

This is a strong plea in favor of correct form and placing, and especially of separate vowel study. The correct form and placing of the voice are sadly neglected. To be convinced of this, one has but to listen to the average singer burying the tone in the throat, and singing it in a muscular, guttural manner, or forcing it out of the mouth with a sharp, thin, disagreeable effect. In either case the correct form of the resonant cavity of the voice, the proper placing of the tone, and the right movement and direction of the vibratory column of air are entirely wanting; the only means whereby it is possible to develop the beauties of the voice.

Nature sometimes assists singers when they do not appreciate the truth or are ignorant of it. Thus a singer may naturally produce a beautiful tone at a certain pitch with a particular vowel sound—the very next tone may be anything but musical.

By a proper study of the acoustics of the voice, all the tones of the voice and all vowel sounds may be made one as beautiful as another.

TOUCH.

A correct touch is the most beautiful accomplishment of the artist ; *it is that which gives life and soul to the voice.* It is impossible to reduce to writing and make perfectly clear, to the minds of those who lack a practical experience, just what the touch of the voice is. It is and can be fully understood and appreciated by a practical experience only. It is only as the voice work advances, and the voice, ear and musical sense of the pupil are gradually developed, that a correct touch is appreciated and mastered.

Generally speaking, the touch is the form and action of the entire vocal apparatus. Directly, it is the manner in which the breath or the vibratory column of air from the larynx is controlled ; the manner in which it is directed well forward against, and reflected from the roof of the mouth. Correct placing with a correct touch is to a very great extent a matter of *will power*, and should *never* be attempted by *muscular throat effort*. "Swiftly, lightly and elastically" must the vibrating column of air be directed well forward against the roof of the mouth, in such a manner that it will be instantly reflected into the resonant cavity of the mouth.

The harmonic beauties, the musical qualities of the voice, are developed almost entirely by the correct form and movement of the vibratory column of air, *the touch of the voice.* *This is the most important point in the art of voice culture, a point but little understood or appreciated.*

Upon the *right or wrong control or management* of the *breath*, the vibratory column of air, depends the *success* or the *failure* of the great majority of singers ; here, then, is a point which requires all the attention, care and skill possible on the part of the conscientious, competent teacher. A correct touch is difficult to acquire, and requires careful teaching, study and

practice, but it is well within the accomplishment of any one of ordinary musical sense.

The great beauty of the voice, the carrying quality, that which carries the softest, sweetest tone as far and distinct as the most powerful—that quality for which all vocalists long, and without which a voice lacks almost everything that is beautiful and attractive, is the direct result of *correct form, placing and touch*.

Madame Seiler says, in reference to the touch, "A correct touch of the voice consists in causing the air, brought into vibration by the vocal ligaments, to rebound from immediately above the front upper teeth, where it must be concentrated as much as possible, rebounding thence to form in the mouth continuous vibrations, which are, at the same time, communicated to the external air. The quicker and the more easily these movements take place, and the farther forward in the mouth the vibrating column of air is reflected, the more beautiful, full and telling is the tone. If the air rebounds farther back in the mouth from any part of the roof of the mouth, then the high inharmonic overtones are prominent, and there arises either one or the other of those hollow, disagreeable colorings of the timbre, which are known as throat and nasal tones.

"That the voice must be brought forward in the mouth—that is, that the air expired in singing should have the above described direction—is now acknowledged as necessary, and aimed at by the best teachers.

"The old Italian masters considered the touch or management of the tone as one of the most important requirements in the perfect cultivation of the voice. Distinctly, lightly, swiftly and elastically must the column of air, rightly directed, strike the forward part of the mouth, which at the same moment opens widely enough to communicate without delay the quick agitation to the air external to it.

"Only by a correct movement of this kind (*Ansatz*), are those forms of the vibrations obtained in which all the har-

monic overtones belonging to a perfect tone sound together. The quicker, lighter and more distinct this movement of the tone is, the more telling it is, and it may be heard quite strongly, even when it is sung piano with a full chorus and orchestra.

“The most important thing in the culture of the voice is the timbre of the tones, for here it is in our power to form out of a sharp, hard and disagreeable voice, a voice sweet and pleasing.

“A good tone in singing is formed—

“1. By controlling and correctly dividing the air or breath as it is expired ;

“2. By a correct direction of the vibratory column of air ; this is done by the right touch ;

“And 3, by a very distinct, quick and elastic touch.”

THE ACOUSTIC PROPERTIES OF THE VOICE.

This subject relates directly to the properties of a resonator, or of a resonant cavity, and of a sounding board. The mouth and adjacent cavities are the resonator, and the roof of the mouth is the sounding board of the vocal instrument.

Take a tuning fork, strike and hold it in the air, but little sound is given out ; strike again and hold it before a small open globe of a certain size and form, quite an increased sound is heard. Now strike and hold it before the open mouth, adjust the mouth to a certain size and form, or to resonance, and again we have an increased volume of sound. What does this teach ? That the mouth when properly formed or tuned is a resonant cavity.

Take the string of a piano, fasten one end to a hook, the other to some strong point ; stretch it well and pluck with the hand ; but little sound is given out ; the amount of wave motion generated by so thin a body is too small to be sensible at any ordinary distance. Now place the string in the proper place in the piano, tune and pluck it again ; we all know the

result. Why the increased sound? The sounding board of the piano vibrates in sympathy or unison with the string and communicates throughout its length and breadth vibration, to the surrounding air, hence the augmented sound. The vibrations of the string are communicated to the entire mass of the sounding board, which in turn communicates vibration to the air above and below it; in this way the tone given out by the string is very greatly augmented.

"The importance of employing proper sounding apparatus in stringed instruments is manifest. It is not the strings of a harp, or a lute, or a piano, or a violin, that throw the air into sonorous vibrations. It is the large surfaces with which the strings are associated, and the air inclosed by these surfaces. The goodness of such instruments depends almost wholly upon the quality and disposition of their sound boards."

The vocal chords of themselves, like the naked string of the piano, give out but little sound; if, however, the right movement and direction are given to the sound waves from the larynx; if they are properly impinged against and reflected from the roof of the mouth, then the roof of the mouth becomes a sounding board, and communicates vibration to the air above and below it. We set the vocal chords into vibration at a certain pitch. Now, if we adjust, form or tune the mouth to correspond, if we have the proper placing and a correct touch, then the tone, which is given birth to by the vocal chords, will be very greatly augmented by the aid of the sounding board and of the resonant cavity of the voice.

In the art, or the science, of voice culture a proper consideration and appreciation of the acoustics of the voice are, with a few exceptions, almost entirely wanting. This is certainly a matter of great surprise, when we consider that the production of every correct tone is based upon no less a foundation than the science and philosophy of sound.

Lennox Brown says: "It is strange how generally unacquainted singers are with the rudimentary laws of sound affecting the musical instrument they play—of the mere linear

perspective, so to speak, of their art. It has been suggested to me that it is not necessary, or even desirable, for singers to know how complex are the functions concerned in voice production. With this view I cannot agree. It is no more necessary for a singer to know the whole science of acoustics than for an artist to know the whole science of optics, though such knowledge could never be detrimental; but it seems at least rational that both should know so much as will explain *why* certain effects are right or wrong.

“A singer need not know the blood and nerve supply, or the microscopic structure of lungs or larynx, but he should know that, to produce a certain effect with ease, certain muscles should be placed in action, and that the distortion of those muscles leads to loss of effect and fatigue of the organ. With such knowledge, on the part of both teacher and pupil, instruction in the art of singing would be infinitely more easy than, it must be admitted, is now the case.”

Nature sometimes assists singers to unconsciously, but correctly, develop the acoustic properties of the voice. A singer may have naturally a well formed and healthy vocal organ, a perfect ear, excellent musical sense, and a soul fitted to enjoy the beautiful only. Such a one has within him the very elements of a great artist, and may unconsciously find the right way. That but few do succeed in this way is very evident; yet, many might succeed were the human voice better understood, taught and used. The art of voice culture must be based upon scientific principles before it can be certain and sure.

In order to gain free, easy action, power and beauty of voice, it is absolutely necessary to correctly develop the acoustic properties of the voice—those properties which develop the power of the sounding board, and of the resonant cavity, to intensify, augment and beautify the tone given out by the vocal chords. This can be done only by the study and development of :

- 1.—*Correct form.*
- 2.—*Correct placing.*
- 3.—*Correct touch.*
- 4.—*The proper management and control of the motive power, which is simply correct breathing.*

Every singer well knows that to sing with a voice or an instrument that is not in tune with, or in perfect sympathy with, his own voice, is much more difficult and requires more force and sustaining power than to sing alone or unsupported. On the other hand, it is as well known that to sing with a voice, or an instrument, that is in perfect tune or sympathy with your own voice, supports you and enables you to sing with ease.

When a well trained singer sings with one whose voice is not in tune or in sympathy with his own voice, then the vibrations of the one voice interfere with those of the other, and the voice of even the well trained singer is kept on the key, and the flow of sound is sustained only by an extra effort. On the other hand, when two voices in perfect tune or sympathy sing together, the vibrations do not interfere; being of the same form, they mutually support, fill and sustain each other, and each voice is sung and sustained by no effort other than the natural support of the well trained motive power.

So it is with the individual voice within itself, only to a much greater degree. When the vibrations of the resonant cavity of the voice are not in form, tune or sympathy with those from the larynx, then they interfere with each other, and the voice is sung by muscular force only. It is true, even in this way, loudness may be acquired, but all genuine power and beauty of tone are wanting.

When the vibrations from the larynx and those of the resonant cavity are in full sympathy, they mutually assist each other, as two well tuned voices support each other, and the tone is produced and sustained with perfect ease. In this way it is wonderful how the power of the sounding board and of the resonant cavity can increase, intensify and augment the tone produced by the vocal chords. "If we now stop to reason

and consider what is necessary in order to produce a strong tone of good quality, we find that the tone produced by the vocal chords must be of a definite pitch ; it must set the air contained in the cavity above in vibration, so as to produce a stationary wave of the same length as that produced by the sound of the chords ; this stationary wave must remain as long as the sound is emitted, so as to act as a self-sounding body, whose sound is intensified by the resonant cavity of the nose. From this proposition we see that the cavity of the mouth must be tuned to exactly the pitch of the tone produced by the vocal chords, otherwise the stationary wave cannot result, and that this tuning must be repeated for every tone of the scale. We further can readily imagine that any outside element which mechanically interferes with the formation of the stationary wave, will rob the tone of its volume and timbre or quality. Such a disturbing element is an undue amount of breath, or too great a force of breath—more than is necessary to start the vibration of the chords. If, on the other hand, every condition is fulfilled to produce a strong and sweet tone, the vibrating body of air in the cavity of the mouth will exert a strong influence upon the vibration of the vocal chords, keeping them in motion with very little expenditure of breath and of muscular force. This is one of the reasons why a well trained voice hardly ever tires of singing.”*

As we have found, a very serious fault in singing is the habit, which is so prevalent, of over-blowing, pushing the voice, using entirely too much breath to produce a good tone. In this way the form and action of the entire vocal apparatus are disturbed. This is owing to ignorance of the acoustic properties of the voice, to ignorance of the right management and control of the vibrating column of air. “Every tone requires for its greatest possible perfection only a certain quantity of breath, which cannot be increased or diminished without in-

* Lecture on vocal acoustics by Carl Seiler, M. D., before the National Teachers' Association, at Buffalo, 1880.

jury to its strength in the one case and its agreeable sound in the other."

But few indeed are the singers who can execute a beautiful crescendo, diminuendo or swell. As a rule, when the tone is increased, too much breath is used, the placing of the tone is lost, it becomes breathy and is often pushed entirely off the key. In the diminuendo the flow of the tone is not regular, and it soon loses resonance and all carrying qualities. It is absolutely necessary that the singer masters the form, placing and motive power of the voice, and the proper movement and direction of the air current before he can correctly and surely execute a diminuendo, crescendo or swell. The swell, etc., is often the first thing given to the pupil, whereas *common sense* should teach any one that it ought to be almost the last, at least an advanced study.

Another very common fault with singers is the abominable habit of striking under the pitch and pushing or sliding the voice up. I have known singers, in attempting to sing high notes, to constantly slide the voice up as much as a third, a fourth, or even a fifth. This is owing to mismanagement of the air current, and can always be cured by the study of the correct form and action, the touch of the voice.

Sound is reflected when its waves strike against any object and rebound. If the vibratory column of air passing from the larynx into the mouth bounds forward and strikes with a quick, light, elastic touch against the roof of the mouth (the sounding-board) just back of the upper front teeth, it will be instantly reflected into the cavity of the mouth, and the air contained in the resonant cavity of the voice will be set in vibration. If the mouth is in perfect form or tune, the vibratory waves of the mouth will be of the same form as those from the vocal chords, providing just enough breath is used to produce and maintain them. These conditions being fulfilled, the strong muscles of the throat will always relax, and will not interfere with the perfectly free and natural action of all the vocal muscles. Then we will have developed the power

of the sounding board and of the resonant cavity to augment and beautify the tone. *Then we will have the desired acoustic properties of the voice, and the best possible result in the way of a perfect tone.*

Chapter III.

THE PRODUCTION OF THE VOICE.

"It is a matter of complaint among all persons of good taste, who take an intelligent interest in art, and especially in music, that fine singers are becoming more and more rare, while formerly there appears never to have been any lack of men and women eminent in this art. How sad is the condition of vocal music in our time! How few artistically cultivated voices there are! The human voice is, of all instruments, the most natural, the most perfect, the most intimate in its relations to us. Certain it is, that to the neglect of the training and building of the voice, the decline of this art is in part to be traced. True it is, that a beautiful tone of voice, which must be considered the foundation and first requisite of fine singing, is becoming more and more rare among our singers, male and female, and yet it is just as important in music as in perfect form in the creation of the sculptor."

The natural production or the development and culture of the voice upon scientific principles, is a thing almost unknown at the present time. The art of voice culture, or the science of voice production, has been and is much behind other arts and sciences. The old, well worn ruts and methods, which many have followed and have tried for years, and which have always been found wanting in certain fixed principles, absolutely necessary to success, must give way in the course of time to aggressive and more progressive ideas. There is to-day much intelligent, scientific study and research in reference to the correct and natural production of the voice. Those who have been and who are giving their time and attention to the scientific study of the voice, have already received and will continue

to receive an increased reward in the way of definite and satisfactory results, as the price of their labors. The age is ripe for reformation, and demands fixed scientific principles in the art of voice culture, and more definite results from the work of those who profess to be masters of the art.

There are three important points to consider in the culture of every voice, viz. : *action*, *quality* and *power*. The development of genuine power, however, lies almost entirely in the careful and correct study and development of the action or movement and the quality or timbre of the voice. This is a point of vast importance to every vocalist, a fact which is not generally known or understood ; at least, if known, is seldom appreciated and properly applied in voice training. If the pupil develops the correct action and the desired timbre of the voice, the development of genuine power becomes a very easy matter, and is sure to follow. The greatest mistake of teacher or pupil, is the attempt to develop power, regardless and at the expense of everything else.

The human voice is a beautiful, a wonderful study, and the more closely we study and investigate it, the more richly it unfolds its beauties to us. A gentleman who has long been interested in the art of voice culture, said to me, " But you cannot interest your pupils in so close and definite a study of the voice as you propose ; my experience is, that the average pupil will soon demand songs or something more in the way of a recreation." I said, my dear sir, how greatly you are mistaken in this matter ; I have found it just the other way. The study of voice proper is infinitely more interesting, to those who have a desire to know their own voices, than are the more advanced studies of the art of singing, the written work. You may say, it is but the few who have more than ordinary vocal gifts or talent, and, consequently, but the few who have a great desire to learn. It is the part of the teacher, to create, if possible, within the pupil, a desire to learn ; this must be done at the very beginning, for at the very starting point in the education of the voice, the work of the teacher goes far toward insuring

final success or failure. The teacher must be able to interest the pupil in his own voice—not by constant flattery, not by leading him to think that he has a remarkable voice, and that much may be expected from it if he will but continue his lessons with him for an indefinite length of time—this is by no means the way. It is a process, which, though it requires great care and skill, is simple and sure. It has never yet failed to create within the pupil of ordinary ability and musical sense a desire to study and master his own voice.

The process is simply this: *Make your pupil hear and know his own voice*, as others who are competent judges hear and know it, *and the work is done*. Make him hear and know every weakness, every defect, every wrong. The moment the pupil hears and understands his voice as others hear it—the moment he knows all the weaknesses and defects, and, the moment you have shown and convinced him that for every *wrong* there is a possible *right*, that moment you have created within him a desire to *eliminate* the *wrong* and *master* the *right*. This is possible only with the teacher who is himself a correct singer, who is able to produce not only a good, pure tone, but all degrees and shades of tone, good, bad or indifferent, at will. The teacher must be able to impart to the pupil, *not only the effect*, but *also the cause*. He must be able to make the pupil fully understand beyond a doubt, why a tone is good, why bad; how made when good, how when bad, how to always produce the good and avoid the bad. The teacher and pupil together must study both sides of the question, the good and the bad, the right and the wrong. In fact, the pupil must be made to fully appreciate the very shades and differences of tone, and the action and control, right or wrong, of the entire vocal apparatus which produces tone, right or wrong.

The first evidence given by the pupil that he is learning to know and understand his own voice, is the ability to correctly criticise others; the ability to point out the defects in other voices—faults and defects which his untrained ear would never

have heard. As the work progresses, and he learns to know his own voice better and better, it will be found that he is able not only to point out the defects in other voices, *but that he is able to correctly state the causes of those defects and to prescribe a cure for them.* It is very interesting and very profitable for voice students to carefully study and criticise other voices. I teach my pupils to study and criticise other voices, and have them criticise each others' voices as often as it can be done with profit to all concerned.

The first thing then to do in the training of any voice, is to create a desire to correct the defects of the voice—a desire for a free, pure tone. Here, at the very start, is where the greatest care and skill on the part of the teacher are required. No argument should be necessary to combat the erroneous idea so prevalent, that any teacher is good enough for the beginner.

The old Italians, who, during the last century, understood so well how to train and develop the voice, had their pupils commence at an early age and continue their training for a number of years. They first made them sing piano (soft tones) only for two or three years, or perhaps longer, as the case might require. Then, as the right movement and direction of the breath was acquired (correct placing with a correct touch), they were made to gradually fill the tone, great care being taken at all times not to use too much breath and thereby disturb the form and direction of the vibratory column of air. In this way, voices of wonderful beauty, power and endurance were developed, but it was a work of many years. At the present day, the average pupil expects to accomplish everything in a very short time; hence, as a rule, the voice is forced, and when it is not entirely ruined, little but loudness is the result. The principles of the old Italian method of training the voice were undoubtedly correct, especially so far as they related to the right movement and direction of the breath; but the manner of proceeding was unnecessarily slow and tedious. Much better, however, was the old Italian method than are the "*rapid transit*" methods now taught, and which are called

Italian methods, for in those days, years ago, they *did* make singers.

Every voice has a certain power or force which is *the natural strength* or *weight* of the voice. This natural tone or weight is produced by singing without throat or muscular effort, or without any effort whatever to increase or diminish the tone. It of course requires some time before the pupil can produce the voice with just this natural strength or power, because almost all, I might say all, untrained voices are in an abnormal condition, either from the constant overpressure or from the suppression of the voice. There is also in every voice a tone which is *the level tone* of the voice, the natural pitch or key of the voice. At this place the vocal chords approximate and produce tone without any effort of the singer to increase or relax their tension or to raise or lower the pitch. Every singer has this level tone or natural pitch, when the voice is in a normal condition, differing, of course, in pitch in different voices. When a voice which has been in an abnormal condition, as voices usually are, has developed something like correct form and action, and is thereby enabled to produce tone by just the natural force or weight of the voice, then this particular place or tone, the level tone of the voice, will become prominent ; it will be the first free, pure tone, produced by the natural force or weight of the voice. So *free*, so *easy*, and so *pure* will the pupil then be able to produce this tone, that it will be a *revelation* to him ; he will then feel that his work has *not* been *in vain*, *that the light is dawning upon him*. If, during the time it has taken to develop this natural tone, the pupil has been taught to intelligently study his own voice, to constantly study the form and action which have produced this tone, then he is prepared to analyze and understand this, the first free, pure, natural tone of his voice. This tone is the starting point from which to study and develop the natural production of every tone of his voice, the production of tone without effort, other than that of the well trained motive power. It is easy to see, how in this way all local throat effort and all strain upon the

voice are removed—how a free and natural action of the larynx and of all the vocal muscles must follow.

The pupil who has thus learned to use the voice is able to sing for hours without fatigue or injury to the voice. The opera singer who sings in this way, reserving the increased or the full power of his voice for dramatic effects or for climaxes, can sing the most trying opera with far better effect and with much less fatigue than he who uses his voice by any system of throat or muscular effort. The voice which is correctly produced and sung by just its natural power or weight, will gradually but surely develop a quality or timbre which it is impossible to acquire in any other way ; it will also have greater power of endurance, will last longer, and will retain its quality to the end, better than voices trained in any other way, for there is no strain or overpressure whatever upon the vocal organs. Not only all this, but the important fact remains, that the voice produced in this way will *gradually* but *surely* grow in *fullness* and *power* ; the *natural* force or weight of the voice will increase with constant and correct use, just as the strength of the gymnast increases, who raises the sixty pound weight at the end of the year, with the same ease that he first raised the twenty pound weight.

When the pupil has developed the natural action, when he is able to produce tone by the natural force or weight, when he fully understands the correct form and placing of the voice, then, and then only, is the study or the practice of the crescendo, the diminuendo, and the swell in order. No one can execute a perfect crescendo, diminuendo, or swell, until he can produce and sustain correct form and placing, until he has perfect control of the right movement and direction of the breath. When the pupil has mastered the correct form and action of the voice, he is prepared to develop the full power of the voice as well as the pure, sweet piano and pianissimo tones. The soft tones are then very easily and very quickly developed. The development of the flexibility, power and beauty of the voice is then a gradual, but sure growth.

The correct development and culture of the voice must necessarily be progressive. He who attempts to do in the beginning that which it is possible to do only after the vocal organs have been strengthened and developed, and the voice properly produced, must to a very great extent fall short of complete success.

The voice teacher should never lose sight of the fact, that each and every voice has an individuality, and that it is impossible to correctly educate all voices in exactly the same way. No written method, it matters not how correct it may be, is sufficient for any voice, much less for every voice.

The production of the voice should be made as plain and simple as possible. The old Italians, who in their day made famous singers, educated their pupils with but a few simple exercises. Every exercise should embody a fixed principle, full of meaning, and productive of grand results when properly and sufficiently applied to the voice. A few simple exercises, embracing just the right principles, will cover and overcome all the difficulties which may be met with in developing, building and toning the voice. Of course, all kinds and grades of exercises and studies must be afterwards used to further educate the voice in the way of flexibility, execution, style, finish, etc.

The successful voice teacher must himself be a correct singer; must have tact or talent for imparting knowledge to his pupils; must have sufficient knowledge of vocal acoustics and of the physiology of the vocal organs, to avoid teaching by imitation and experiment only. The teacher who has not this knowledge cannot possibly avoid teaching by imitation and experiment, and therefore cannot avoid transmitting his own faults to his pupils, for without this knowledge no teacher can fully understand the correct production of any voice, *much less that of his own.*

Again I say, no voice can be fully or safely developed by any system of local throat gymnastics. Direct the mind, the great engineer, of the voice, to a point beyond, in such a man-

ner that the strong muscles of the throat will not contract, but will relax, involuntarily relax, thereby affording a free and natural action and movement of the entire vocal apparatus. That point is the acoustics of the voice, which are developed only through the study and mastery of correct form, correct placing, correct touch, and the motive power of the voice.

Chapter IV.

The male voice.—The second series of the chest register.—The female voice.—
The head register.

THE MALE VOICE.

Much has been written and said about the voice in a general way ; but little has been written or said about the male voice in particular. Little as the female voice is understood, the male voice is understood less, especially the extreme high and low parts of the voice. A lack of low basses and high tenors, is the usual complaint in this country. This may be attributed to some extent to the physique of the singer, but it is to a much greater extent due to a want of proper training and usage. We by no means make the most of the material we have.

We have learned that the male voice as a rule sings in but two registers, the chest and the medium. We have also learned that the chest register is divided into two series, and that this division takes place about B flat or B third line tenor clef. The middle tones of the male voice are not difficult to develop, though they are often closed and breathy in the untrained voice. It is the lowest tones of the first or lower series of the chest register, which require particular attention and treatment.

It is considered, by many, injurious to develop the very low tones of the tenor voice ; it is claimed that the development of the low tones injures the high tones—that it limits the compass of the high voice. No greater mistake than this could possibly be made. The low tones of the tenor voice should be developed until they gain perfect freedom and vibration, until all breathy and throaty quality is removed. In this way the throat expands and the entire voice gains in freedom and

purity. This development must be done by the right movement and direction of the breath, and without the least force or pressure. The tones must be sung by the natural weight of the voice only. The danger in developing the low tones of the tenor voice lies in the usual forced or guttural manner in which they are sung. This unnatural pressure affects the throat and vocal muscles, and is felt more or less throughout the entire voice. Unfold the throat by the proper development of the middle and low tones, and the development of the higher tones, where the tension is so much greater, will become all the easier. I have always found that the more I can properly expand and extend the low tones of the tenor voice, the more easily can I develop the high tones and the more can I extend the compass ; but it must be done without the least force or throat effort.

The correct development of the low tones of the bass or baritone voice is of vast importance. How few basses there are who understand the low tones of their own voices. How few there are who sing the very lowest tones, without undue pressure and extra throat effort. How few there are who appear to know that there is a way to sing them with perfect ease ; a way that will fill and develop them as no other way can, and that will gradually but surely extend the compass lower and lower.

The right production of the very low tones of the bass voice is "essentially a forward movement" of the column of air. The common custom or habit, however, is to allow each tone to bury farther and farther back in the throat as the voice goes down, to swallow them as it were ; thus each tone becomes more muffled and indistinct, until all carrying quality, power and effectiveness are lost. This backward and downward movement is just the opposite of what it should be, and is beyond doubt the reason why many strong bass voices cannot sing a good low tone. As the voice sings down, the tone must be placed well forward, and the lower the tone the more it must be brought forward ; this must be done only through

correct form and the proper movement and direction of the vibratory column of air; there must be no undue force or throat pressure. When the low tones are thus managed the throat will lose its usual contracted condition by the relaxation of the strong muscles, and a free and natural action of all the vocal muscles will follow. Then the low voice will gradually but surely gain in compass, power and quality. Many basses by a forced pressure upon the windpipe, whereby the larynx is pressed down and out, are enabled to produce a low tone; but it is always a disagreeable, guttural growl, and is very hurtful to the entire voice.

The correct training or development of the low tones of any voice is a wonderful relief from strain and throat pressure to the entire voice, its influence for good is felt from the lowest to the highest tone.

THE SECOND SERIES OF THE CHEST REGISTER.

The tones of this series are troublesome and dangerous breakers in the way of the success of a very large majority of singers. They are not generally understood, which accounts for the miserable condition in which we so often find the middle and high tones of the tenor, and the high tones of the baritone and basso. There are fewer well trained and agreeable tenor voices in proportion to numbers than of any other class. This is by no means necessarily so. It need be so only because the singer may not be able or willing to give his voice the time and attention it may require.

The second series of the chest register requires more careful teaching and study than all the remainder of the voice; here is where the great mistake in the training of the male voice is almost always made. Many tenor voices are ruined in the attempt to develop the two or three higher half tones of the second series of the chest register and the first tones of the medium register.

The serious trouble in the training and use of the male voice is found in the upper chest tones when the action and form of

those tones are not understood. Then almost invariably the action and form of the lower chest tones are forced up too high, or that of the medium register carried down too low. The forcing up of the lower chest form and action spreads the voice, and is a terrible strain upon the larynx and the entire throat. Carrying the medium down too far contracts the strong muscles of the throat and the voice becomes pinched, throaty and veiled, but it is not so great a strain as forcing up the lower chest tones. But few tenors can sing well and with ease all the vowel sounds on E, F, and F sharp, fifth line, simply because they do not understand the form and action of the upper chest tones. They either force the tone with the lower chest form and action, and it becomes a shout, or they carry down the medium, and it becomes pinched and throaty ; it will depend upon the vowel sound and the approach to the tone. Either case being an abnormal effort, the voice is affected more or less throughout its entire compass. Thus, as a rule, we find wanting in the male voice the most beautiful tones, the free, bright, ringing upper chest tones.

How often we hear such remarks as the following : "His voice is throaty ; he pinches his high tones ; he forces his high tones until he becomes red in the face," etc., etc. How true this is, especially of the tenor. How very few tenors there are whose voices are evenly developed and of the same freedom and beauty throughout. It is very true that the tenor voice is by far the most difficult of all voices to properly train and develop. It is the most difficult to understand, and when fully understood, is the most difficult to master. If it is difficult to master when understood, how can we expect to hear good tenor singers, when, as a rule, the voice is not understood by teacher or pupil? So long as the tenor voice is sung by sheer muscular force—so long as the acoustic properties of the voice are ignored—so long will we hear poor tenors ; so long as the proper movement and direction of the vibratory column of air, and the correct form and action of the voice are not understood, so long will we hear poor tenors.

Herr Emil Behnke says: "There are still, unfortunately, teachers who seek to extend the voices of their pupils by forcing the registers upward, and they are very proud of these made tones thus added to the voices under their care. But this kind of training is radically wrong, and inevitably leads to disaster. I am firmly convinced by very extensive practical experience, that one great reason why we have so few tenors at the present time is, that their 'upper thick' is screwed up to an unnatural extent; while the 'lower thin,' which ought to be cultivated, strengthened and united with the 'upper thick,' is totally and unaccountably neglected."

It is generally considered that the high tones of the tenor voice, the medium register, are the most difficult to train and develop. This is by no means the case. If the upper chest tones and the transition from the chest to the medium are not understood, then it is impossible to fully control and master the higher tones. This is the most difficult point in the tenor voice. To make the pupil understand and appreciate the difference between the chest and the medium tones, to teach him to master the transition from the one register to the other, and to use this part of his voice without the usual pinched, contracted and overstrained condition of the throat, requires great care and skill on the part of the teacher. Here is where the value of the teacher's own voice makes itself especially felt, if it is a tenor voice. No teacher can fully understand and appreciate this, the most difficult part of the tenor voice, who himself has not had a practical experience in mastering its difficulties.

Many fine tenor voices are ruined just at this point by teachers, who may be excellent teachers for all kinds of voices except the tenor.

When the upper chest tones and the transition from the chest to the medium register are fully understood and mastered, the training or development of the higher tones is by no means difficult. Then the training of the medium register usually becomes but a question of time and careful practice. The

form and action of the medium are not so difficult to master as those of the upper chest tones.

The Baritone voice is usually the easiest of all voices to develop. Baritones naturally get better form and action for the upper chest tones, and of course sing them more nearly right, and it follows that the entire voice is freer and better than any other. The basso may sing in good form until he reaches the upper chest tones, then, as a rule, he will shout, or more likely close and pinch the throat; in this way the compass is limited and the upper tones are sung only by a forced effort, painful to singer and listener. The baritone can force the lower chest form and action a tone or two higher than the basso, and the tenor yet higher than the baritone; but the forced-up tones are more like shouting than singing.

It is absolutely necessary, in order to fully and artistically cultivate the male voice, to correctly train and develop the upper series of the chest register, and the natural transition from that to the medium. The tenor voice, more than all others, feels the want of this development, because it is used so much in the high chest tones and the medium register. When this training and development are acquired, the voice becomes perfectly even, without perceptible break or change from the lowest to the highest tone. *I have yet to find the first tenor who had trouble with the high tones, after once mastering the upper chest tones and the transition from the chest to the medium register.*

THE FEMALE VOICE.

Many principles in voice training are common to both the male and female voice. The study of the form and action of the voice, the management and control of the air current, etc., have principles in common; yet the voices differ widely in certain points and particulars, and in respect to those points, etc., require very different treatment.

The male voice, as we have learned, sings, as a rule, in but two registers, while the female voice sings in all the natural

divisions of the voice, viz., the first and second series of the chest, the first and second series of the medium and the head register. Two of these divisions are sources of much serious trouble to the female voice—the second series of the chest register, from C sharp, added line below to F sharp, first space, and the head register, which extends from F sharp, fifth line, upward.

When in the female voice the form and action of the second series of the chest register are not understood, then, as a rule, the lower series of the chest tones are forced up too high or the medium tones are carried down too low. Carrying the medium register down too low, or carrying it down so low that all chest tones are entirely wanting, as many sopranos do, is not a positive strain upon the voice ; but the voice becomes closed, breathy, thin and small, and the quality and compass are always affected. It is, however, much safer and better to carry the medium tones down too far, than to force the chest register beyond its natural limit, but it is impossible to do so, and at the same time fully develop the voice.

When the lower chest form and action are forced up to G, G sharp or even farther, as is too often the case, then the forced-up tones are coarse and disagreeable, and the entire voice is more or less affected by the unnatural effort and the great strain. When the lower chest tones are thus forced up, the beautiful tones of the second series are entirely wanting. In this way it is impossible to avoid the abrupt change which must take place in the transition from the chest to the medium register. This is called by certain writers and teachers the break in the voice. What consummate nonsense. There is no necessity for a break in any voice or even a marked change. If there is a break in the voice it is because the voice is used in a forced and unnatural manner, because the correct form and action of the voice are not understood. There have been, and no doubt are, teachers who endeavor to cultivate the break, or at least a marked change between the chest and medium register. They teach their pupils to force up the chest

tones, and even the lower chest tones, as far as possible ; and strange to say, they are proud of the coarse, disagreeable, forced-up, made tones ; they claim that by so doing they develop the power of the voice. There is no doubt but that they do develop noise, but at what a fearful cost. My experience is that the voices of the victims of such unnatural, forced and ruinous methods, are always much more difficult to correctly develop and train, than those that have never been in the hands of any teacher ; the bad habits and faults are so fixed, and the vocal apparatus is often so strained, that it requires great care, patience and time, to overcome the evil effects of the forced and unnatural treatment.

It is well known to all teachers that as a rule the middle tones, the first tones of the lower series of the medium register, are the weak spot in the female voice. This weak part of the voice is usually found to extend from F sharp, or G second line to B, or C third space. There must be some cause for this weak condition of the middle tones. The veiled and feeble condition in which we so often find the middle tones of the female voice, is almost without exception the result of an *overstrain* from having *forced* the chest register *beyond its natural limit*. Forcing up the chest register being a strain upon the entire vocal apparatus, the reaction which is sure to follow, contracts and closes the throat ; the reaction which must follow the sudden break or change in passing from the forced up chest, to the medium tones. The middle tones of the voice, the first tones of the medium register, feel most the effects of this reaction and consequent contraction, and become closed, weak and feeble. It is strange that singers will persist in such an unnatural and ruinous course day after day.

The upper chest tones, when understood and correctly developed, are the richest tones of the voice, especially the contralto voice, and when correctly sung, there is no such thing as break or change at all perceptible in the transition from the chest to the medium register.

THE HEAD REGISTER.

This register is often a source of much serious trouble. There is not so marked a change in the transition from the medium register to the head, as is usually heard in the untrained voice or the voice which is not correctly trained, in the transition from the chest to the medium. The upper medium and the lower head tones sound so much alike, that unless the form and action of each are fully understood, it is often difficult to tell where the transition is made, or if made at all. The change occurs or should occur at F or F sharp, fifth line. When, however, these tones are fully understood, there is no question in the mind of either teacher or pupil as to when the transition is made or how the tone is produced. The difference in the form and action, and the different sensations caused by the correct production of a medium and a head tone are distinct and definite to both teacher and pupil. When the transition is correctly made from the medium to the head tones, the singer experiences a sense of relief, as the first of the head tones F sharp, G, etc., are usually produced with less tension and less sustained power than are the preceding E and F, the highest medium tones.

There are but few who sing correctly the head tones. In order to sing them well, the singer must know beyond a doubt the difference between a medium and a head tone ; must know how and when to make the transition ; must know and understand the peculiar form, action and placing which are absolutely necessary in order to produce a head tone of the right quality and without strain. The head register is capable of almost unlimited expansion in many voices, and with proper care and training may be gradually, but surely, extended very high, without the least strain.

The serious trouble or error in training the high tones of the female voice is the custom or habit, so common, of forcing or pushing up the form and action of the medium register as far as possible, in such a way that the head voice is not used

at all. This, of course, is a strain upon the vocal organs, and the result is, and must be, a limited compass ; whereas with the proper development of the head register the voice would run much higher, the high tones would have much better quality, and be sung with comparative ease.

When the medium form and action are forced up, and the head tones are entirely discarded, the singer feels that a high note is far above her, and consequently the entire vocal apparatus is pushed up to reach the note. High tones produced in this way will be buried, as it were, back in the throat, veiled and feeble, and can be forced but a few tones above F sharp ; or they will be shrieked out without form or placing. The latter way the voice can be forced a little higher, but it is impossible to sing the high tones softly and sweetly. It is this unnatural use of the voice ; this forcing and pushing up of the entire form and action of the voice ; this habit so prevalent of entirely discarding the head tones, that to a great extent accounts for the lack of high sopranos. All sopranos can develop to a greater or less extent the head register. I have never yet met with a contralto voice which could not by proper management produce some of the head tones. I have known contralto voices to expand the head register to a great height ; but, as a rule, the head tones in the contralto voice are not sung with the same ease and grace as those of the soprano.

The idea is very general with singers that a high note is far above them ; that they must make a special effort to *reach* it. This is accounted for by the fact that but few voices have a correct action ; but few singers understand the form and action of the high tones ; that peculiar movement which enables them to adjust the vocal organs to the pitch of any tone of the voice, high or low ; that which enables them to, at once, place themselves upon a level with the high tone, and to produce it with that movement which overcomes all undue effort and strain.

The ability on the part of singers to place themselves upon a level, as it were, with the high notes of their voices ;

that peculiar movement which enables them to produce the high tones, without undue effort or strain, without pushing or reaching for them, is of vast importance to all voices, and especially to the tenor and high soprano. It must, however, be experienced and understood, to be fully appreciated. In this way, and in this way only, are the high tones sung with as pure a timbre, with the same grace and ease, and with as little effort and strain as are the middle and low tones. The only extra effort necessary, is to increase the sustaining strength of the motive power of the voice, which increased sustaining power, *must be correctly applied to the voice as it ascends*; thus, all extra effort is placed upon *the motive power alone*, which leaves the action of the voice as free and easy in producing the high tones as the low. This movement, of such vast importance to all singers—this movement or action, which enables the singer to produce the high tones correctly, and with the same grace and ease as the middle and low tones—is the direct result of the development and mastery of *a correct touch*.

